FIRST RUBBER CONVENTION EVER HELD IN AMERICAN SOIL

(Continued from Page One.)

home. On the mauka side of the trail were several big trees which had been planted nine years ago by Hugh Howell, together with many others which have since been cut down, through ignorance of the fact that they would produce rubber in large enough quantities to be commercially valuable.

In telling of these trees Mr. Howell said:

"I first became interested in rubber a little over nine years ago, through reading in one of the larger magazines of the country of the fact that the natural rubber supply of the world was becoming exhausted rapidly and that there was a fortune ready for any energetic man who took up the cultivation of rubber trees on a scientific scale and was located in a favorable climate. I wrote to Joseph Marsden, then Commissioner of Agriculture, asking him for information in regard to rubber and also for any seed that might be available.

"He replied by sending me seed, but in reply to my request for information stated that the subject was one which had just been taken up by his department and that they had not reached a stage in their investigations which could yield any results which would be profitable to me. The seed he stated would probably grow if I handled it according to the directions which he gave me, but he could not say whether it would prove a profitable industry.

MARSDEN'S ADVICE.

"About three or four years after, I met Mr. Marsden in Honolulu, and spoke to him of rubber. He said that there was nothing whatever in rubber in the islands and advised me to give it up and to grow camphor, which I did. As the result of his advice I cut down all the trees which had grown from the seed he had sent me with the exception of three or four. Now I wish that I had kept the whole lot.

"Before cutting the trees down I tried them to see if they would produce any rubber, and on account of my complete ignorance in the matter felt that Mr. Marsden's advice was correct and gave the trial up. The way in which I tapped the trees made it almost assured that I would be disappointed. I knew nothing of the manner in which it should be done and bored into the tree with a bit, as one would into a maple tree for sap, and when I only got a drop or two of the latex, or milky fluid, from which the rubber is formed I felt sure that there was no further use in continuing the experiment."

Just before breakfast was served Q. Q. Bradford, of the U. S. Experiment Station tapped one of the largest trees which had been left by Mr. Howell, when he cut down his first rubber grove and the members of the party gathered round to watch the operation. The result was quite successful, in a few minutes enough latex being collected to form a ball of rubber the size of a man's thumb.

TAPPING TREES.

In tapping the tree the first thing done by Mr. Bradford was to clear the bark from the trunk for a space extending from about seven feet in height to the ground and about ten inches in width. The bark was very light and easily removed with a small knife. The next move was to bind around the tree a sack made of rough canvas, with several small pockets. These pockets were filled with a solution of ammonia and water, which slowly trickled down the trunk. Then starting from the top Mr. Bradford drew a small instrument down the trunk. In doing this he cut a three cornered channel down the trunk. The latex followed the cut, coming slowly and being caught by a small scoopshape piece of tin which was stuck in the tree near the ground and which led the milky fluid, which had become mixed with the ammonia solution, into a small pan.

Mr. Bradford explained that the ammonia was used to keep the latex from coagulating and thus stopping the flow. The cut, which had been made and which penetrated only the bark and did not touch the trunk of the tree, was cleaned out several times by Mr. Bradford and a renewed flow followed. After about ten minutes Mr. Bradford ceased his work, which had taken long enough to allow the collection of perhaps half a cup full of latex and solution to gather, and proceeded to show the party how the rubber was formed.

THE RUBBER RESULT.

He poured a small quantity of acetic acid into the receptacle and then began to stir the fluid. Slowly the particles of rubber began to collect on the stick with which he stirred and in a few minutes a small ball of white rubber was formed. It was elastic and when formed into a string was evidently rubber of good quality.

When the tree which was tapped at this time was seven years old it was tapped and a pound and a half of rubber was taken from it. The tree lacks two inches of being five feet in circumference and appears to be very strong and healthy in condition in spite of the fact that the trunk was very much scarred from the fact that it was located almost on a trail and had evidently been cut by a great many passers by.

According to Mr. Bradford the best time to tap a tree is at between midnight and sunrise as the heat of the sun prevents the latex from flowing readily. The trees may be tapped when they have reach a size of twenty inches in circumference and the usual custom is to tap for about nine days in succession.

After breakfast a second tree, this time one which was planted three years ago and which has grown to a height of twenty-five feet and a circumference of nineteen inches was chosen. The same process which has been noted was used and the flow was very satisfactory. The yield in rubber from the smaller tree, however, was not as large as it had been in the older one.

THE PARTY'S TRANSPORT.

During breakfast the natives from all around the Nahiku and Hana region kept coming in with saddle horses and wagons. There were sixty members of the party to be transported through the various plantations, and it was quite a tax on the resources of the inhabitants of Nahiku and Hana to supply good mounts for all. The first squad were mounted and away by 7:30 and started on a long trip covering perhaps twenty miles of territory, on small trails, which were in some cases hard even for the native ponies to travel.

Rubber trees were on all sides. It was as in the sugar district where only fields of cane can be seen. Nothing but rubber trees were in evidence. Here and there would be a nursery, surrounded with wire screens to keep away the rats, which are the greatest enemy of the young plant. The method which is usually followed on Maui in raising the trees is to plant the seed in a nursery, where the lower coating of soil is composed of horse manure, which contains so much heat that the seed germinates rapidly, coming up to the surface of the ground in from two to ten days. An interesting feature in this connection is that the seed which has been taken from the trees grown in this Territory has proved far more fertile than that which has been imported. In this connection it is stated that ninety per cent. of the local seeds have germinated, while of the imported seeds only from seventy to eighty per cent. have come to life.

PLANTING TREES.

When the young plant is grown to height of from six inches to a foot it is placed in a cane basket, made from a section of sugar cane, perhaps five inches long and open at both ends, and in this receptacle is planted in the ground at the desired distance. The cane basket quickly decomposes, and the plant is left free. In planting at Nahiku the usual method followed has been to clear a space of all weeds and growth about three feet in diameter and to place the small plant in the center of this. The plants are placed in rows ten feet apart, and from ten to twelve feet separates the rows. This means that each acre of land will accommodate about 400 rubber trees.

The land between the trees is not cultivated, on account of the fact that the trees seem to thrive and do well under the method in use and the cost of cultivating the entire space of ground which will ultimately be covered by the trees would be excessive.

It has become the custom of the plantations to have the rubber plants set out by contract, and at the Nahiku plantation this plan has been very successfully followed. Last year the contracts called for the plants to be set out and cared for and to be accepted by the plantation if two feet high at the end of six months. For each plant so grown, the sum of ten cents was paid. This price has been brought down this year, and eight cents will be paid for plants under the same general rules.

RATS ARE ENEMIES.

Rats are one of the greatest enemies which the rubber plantations have. The rodent family delight in the tender morsels which they find in the young shoot and make a habit of living in colonies in the gulch and doing their work of ravage at night. After the plants have grown to a height of several feet they are free from this pest, against which all possible precautions are taken in the meantime. Numerous attempts have been made with various kinds of poison, and dogs of rat-killing species have been used with considerable success, and the managers of the plantations around Nahiku have been able to drive away or kill so many of the pests that they believe that they have the situation well under control.

Three kinds of rubber trees have been tried on Maui. The most important of these is the Ceara, which has proved to be the most rapid grower and has in this Territory far outstripped all known records for luxuriant and healthy growth. The second, in the minds of the rubber growers, is the Hevea, which has not grown so well, and is what is sometimes called the Brazilian, or Para, rubber. The third is the Castilloa, or Central American, rubber, which is called the black rubber, in commerce.

By far the largest number of trees on Maui are of the Ceara variety, and its rapid growth has exceeded all expectations. The seed is oval in shape and about the size of a kidney bean. It is covered with a very hard shell, and in order that it may sprout more quickly and in the right direction, the corners are slightly filed before planting. When first appearing above the ground it appears very much like a bean which is sprouting, with two cotyledons or baby leaves on top. Following this three more leaves appear, and with the Ceara the leaf is almost invariably composed of an odd number of points, three, five, or sometimes seven.

FAST GROWTH.

In the first year a tree of average height and in good condition may be expected to reach five feet at least, while eight feet is by no means extraordinary. In the second year the branches begin to start, normally following the odd numbers as in the leaves, either three or five. The tree at the end of its second season will probably be from twelve to fourteen feet in height and from six to eight inches in circumference. This rapid growth continues, and a size of nearly twenty inches in circumference, with a height of twenty-five feet, is by no means extraordinary at the end of the third season.

On the Maui plantations the rubber trees are spread over an area of country which covers all altitudes from seventy to 1000 feet, the highest plantation being on what is known as the Scott lot, belonging to the Nahiku Rubber Company, which consists of about 100 acres of land, the majority of which is rough and full of ridges and gullies. The rubber trees seem to grow better where there is not too much water, though they demand a very high rainfall to do well. The trees on the ridges seemed to be stronger and more flourishing than those in the lower places where water might collect. Half of the trees on this land are about a year old and the remainder have been planted since last February.

The first trees on the plantation of the Nahiku Rubber Co., of which W. A. Anderson is manager, were planted in March, 1905. These were 6000 Ceara, 5000 Hevea and 450 Castilloa trees. The first-named have grown very rapidly and cover about fifteen acres. A number of experimental tappings have been made and will be continued, but the real work of tapping will not be commenced till October next, when the trees will have completed their fourth year's growth. The Hevea trees have not grown so fast, while the Castilloas are still further behind. The latter tree, it is thought, will need a warmer country. With the two, however, there is an important question which can only be answered by continual experiments. It is possible that while they are slower in growth than the Ceara they may yield more rubber, and until this is decided the same care will be taken of them as of the more fast-growing kinds.

In the year of 1906, 250 acres of Ceara, or more than 100,000 trees, were planted, while in the present season 100,000 Ceara have been planted, and there will be a very large number of Hevea seeds placed in the ground in the next month or two. The plantation employs forty men and has a total planted area of 500 acres. Its running expenses for the present year have averaged about $18,000.

The Koolau plantation, C. O. Jacobs manager, has 250 acres of land now planted and the trees, which are all Ceara, number over 100,000. The first were planted twenty-seven months ago and were a small lot of 2000 trees. Manager Jacobs states that he does not expect to tap till the trees are at least five years old. Last year 58,000 trees were planted and 40,000 have been planted in the present season, while it is planned to set out seventy-five acres of Heveas this season, if possible.

The Hawaiian-American Rubber Co., of which C. J. Austin, formerly connected with the Territorial Board of Agriculture and Forestry, is manager, and W. A. Hardy assistant, planted its first trees, 23,000 in number, in July, 1906, covering a space of 150 acres. Two hundred acres more will be planted during the present year. All the trees, both of this year's planting and last, are Ceara, and are growing in the best of condition. According to the plans which have been made by Mr. Austin, the tapping of the trees will not commence till 1909, when the first 23,000 will yield the first crop of rubber at the age of four years.

W. G. Scott, the owner of an individual plantation, has a fine young rubber forest started with ten thousand Ceara trees. He plans to keep on and will increase his planting each year. The Nahiku Sugar Company has taken up rubber also. It is controlled by Alexander & Baldwin, and D. Sylvester is manager. At the present time they have about 35,000 trees on an area of 100 acres.

One of the finest of the smaller plantations is that of F. Wittrock of Hana. His trees are two and a half years old, and are among the lowest in altitude on the Island of Maui. They have been given a great deal of individual care and as the result Mr. Wittrock has 2000 of the finest Ceara trees to be seen in the Territory.

THE WEATHER.

The weather at Nahiku was perfection till shortly before noon, when the rain began to fall in sheets, and the beds of streams which had been dry throughout the morning filled rapidly and became in a few minutes roaring torrents. All the members of the party who were on horseback, which meant nearly fifty rubber enthusiasts, were drenched from head to foot, though many had brought along rainproof coats, expecting an experience of this kind.

Lunch was served at Manager Anderson's house shortly after 12 o'clock in the form of a luau, Mrs. Anderson having charge and feeding those present on poi, and pig a la Hawaiian. Fruits of many kinds were also served and everyone had all that he could eat, and then started in on the first rubber convention which has ever been held on American territory.

A preliminary meeting had been held on May 22 at Wailuku, at which the following officers had been elected. The complete formation of the association and the closing of the charter, however, occurred Saturday. Sixty charter members, probably a banner record for any association of the kind, were enrolled. The list of officers and members is as follows: D. C. Lindsay, president; Dr. E. C. Waterhouse, vice president; Hugh Howell, secretary-treasurer; H. A. Baldwin and J. L. Coke, trustees. Members:

C. M. V. Forster, F. L. Waldron, E. C. Brown, L. B. Murdoch, F. M. Church, F. L. Webster, B. Von Damm, R. J. Pratt, George Cooke, William Williamson, C. D. Lufkin, C. J. Austin, W. W. Hall, N. Omsted, W. A. Anderson, R. A. Wadsworth, C. O. Jacobs, F. Wittrock, W. D. Lowell, W. Hardy, W. G. Scott, F. T. P. Waterhouse, A. Waterhouse, W. F. Payne, J. G. Smith, J. L. Coke, H. A. Baldwin, Hugh Howell, Dr. E. Waterhouse, D. C. Lindsay, Dr. J. J. Molony, A. A. Aalberg, W. H. Field, W. L. Decoto, J. E. Gannon, R. H. Hosmer, G. C. Cooper, Eugene Capelias, W. F. Frear, David Haughs, C. S. Desky, S. Decker, J. M. Vivas, W. C. Weedon, H. E. Hendrick, C. E. Copeland, E. A. Born, Geo. L. Keeney, H. Doden, E. A. Knudsen, W. Weinrich, W. W. Thayer, Q. Q. Bradford, Dr. A. B. Clark, W. A. McKay, Frank Alexander, F. P. Rosecrans, Capt. Nicholson, C. C. Krumbhaar, Dr. W. G. Rogers, A. W. Van Valkenberg, H. M. Coke, H. B. Weller, Dr. McConkey.

ADOPT BY-LAWS.

The first business taken up was the adoption of by-laws. The usual form was adopted. In this regard the organization is planned on very much the same lines as the Sugar Planters' Association, with one or two exceptions. The following extracts from the by-laws give the only salient features:

ARTICLE II.—MEMBERSHIP.

Section 1. Members of this association may be rubber plantation companies and individuals who are directly interested in rubber culture or in rubber plantations, but the trustees of this association may in their discretion admit other plantation companies and individuals engaged in other agricultural pursuits.

Sec. 2. Applications for membership shall be made to the Board of Trustees, and applicants, upon receiving the approval of the Board of Trustees at a meeting, and upon the payment of the initiation fee and a year's dues, shall be added to the roll of members.

Sec. 3. The initiation fee shall be one dollar ($1), and the annual dues for each member shall be one dollar, payable on January 1 of each year.

ARTICLE IV.—VOTING.

Section 1. At meetings of the members of this association, at least ten members must be present to constitute a quorum for the transaction of business. Members may be represented by proxy, notice of which must be given to the secretary in writing. Proxies given by individual members can be held by members only. Corporation proxies must be signed by two officers of the corporation member. A majority of all votes cast at such meeting shall decide all acts except as hereinafter provided in Article VIII. Each member shall be entitled to one vote.

The first speaker called on was Jared G. Smith of the United States Experiment Station, who said in part:

"Rubber in the condition that it is found in the plant is in the tissues. In the Ceara it is a network of cells not directly connected. That is, it is the opposite, for instance, of the blood in the human system. If the arm should be cut from a man he would bleed to death, but when you break a branch off a rubber tree the tree does not necessarily die. There is a certain connection but it is not a close one. If a rubber tree should be cut down you would by no means get all the rubber from it. The latex from only a small area would be withdrawn.

"The rubber in a plant seems to be placed there for the purpose of preventing evaporation of moisture and to stop up wounds which would otherwise cause trouble and possible damage to the tree. There certainly is rubber in many trees in Hawaii and it seems to me that there should be a great deal of success in the growing of rubber trees here.

"At the Experiment Station we have been making a number of preliminary experiments which we hope will be of use to the rubber growers both here and elsewhere. One of these you have seen this morning in the tapping of trees. There is still a great deal more to be done and we are going ahead with it.

"From what I have seen of the Ceara tree in this country it stands just as well and in some cases far better than anywhere else. The treatment of the trees is a matter which can best be worked out by those actually in charge of the work. The theory is that one should get the most wood that is possible in healthy trees which have, at the same time, been grown in the shortest length of time and at the least expense. That is, the trees should be forced as much as is possible. I repeat that I believe that the best way that this can be determined is through the efforts and observations of those who come in contact with the actual work here on the plantations."

Dr. Waterhouse was called on next and read a paper which was probably the most interesting of the meeting. It will be found on page 5. He was followed by a paper written by Jacob Kotinsky and read to those present by L. A. Thurston. Mr. Kotinsky dealt extensively with the various pests which are now in these islands and have been found to affect rubber trees and also with the various pests which affect rubber in other countries from which seed is imported here. He took up all the known pests one after another and described their various habits and characteristics. In closing he said:

"I am certain that we are still free from serious insect pests on rubber plants and doubt whether the fungus disease are of any material consequence. The list of insects affecting rubber in countries upon which we draw for our seeds and plants should bring us to a full realization of the importance of careful and conscientious inspection of rubber seeds and plants imported from outside the Territory. You can depend upon the thoroughness of inspection of plants, etc., that come by way of Honolulu. But I presume there is always a chance for the ambitious (?) manager to import surreptitiously seeds and plants and evade our inspection laws. If these notes succeed in impressing you sufficiently with the importance of, so far as possible, keeping out possible insect pest invasion to the extent that consignees will refuse to accept or introduce foreign rubber seeds or plants unless they are accompanied by a stamp or certificate from the Territorial Inspector indicating that they have received his attention, if this object is attained these notes shall not have been presented in vain."

HAVE FEW PESTS.

C. J. Austin was called on to give a short talk on bugs which trouble the local rubber men. He said in part:

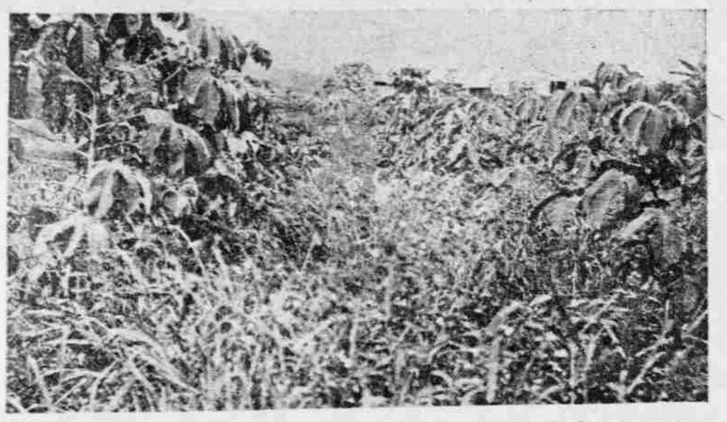
"In the Territory of Hawaii the rubber planters are unusually fortunate. There are a few insects which will need some care but I believe that I can say that in every case we have at hand the parasite which will destroy the pest. There may be some which we do not know of as yet but I doubt if there are any of sufficient importance to cause trouble if the trees are carefully watched.

"There is some slight indication of a fungus disease but this troubles only the leaves and has not gone into the wood, where it would create damage to any extent. On this account, with prompt action and care I believe we are safe from trouble of this kind. There are fungus diseases extant in this Territory which attack the roots but so far they have never attacked rubber. On the whole I believe that I am safe in saying that we are very fortunate and have no insect or disease which can be considered a dangerous enemy to our new and coming industry of rubber production."

(Continued on Page Eight.)

(Advertiser Photo.)

MANAGER ANDERSON'S HOUSE AT NAHIKU RUBBER CO.'S P LANTATION, SHOWING CASTILLOA RUBBER TREES IN FOREGROUND



SEVEN-MONTH-OLD CEARA RUBBER TREES AT NAHIKU.

CEARA RUBBER TREES AT NAHIKU THREE MONTHS OLD.